

CLAIMS

1. Cosmetic process for softening the wrinkles of wrinkled skin comprising a stage consisting
5 in applying, to said wrinkled skin, a cosmetic composition, comprising, in a physiologically acceptable medium suitable for topical application to the skin of the face:

10 - from 0.1 to 20% by weight of at least one tensioning agent, with respect to the total weight of the composition, and

- at least one dispersion in a liquid fatty phase of solid particles of a grafted ethylenic polymer.

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2. Cosmetic process according to Claim 1, in which the tensioning agent is present at a content ranging from 1 to 10% of the total weight of the composition.

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25 3. Cosmetic process according to Claim 1 or 2, in which the dispersion is present in the composition at a content ranging from 0.01 to 20%, preferably from 1 to 10%, of the total weight of the composition.

30 4. Cosmetic process according to any one of Claims 1 to 3, in which the liquid fatty phase is present in the composition at a content ranging from 0.5 to 80% of the total weight of the composition,

preferably from 1 to 55%, more preferably from 1 to 25%.

5 5. Cosmetic process according to any one of
Claims 1 to 4, in which the tensioning agent is an
agent producing, at a concentration of 7% in water, a
retraction of the isolated *stratum corneum*, measured
with an extensometer, of more than 1% and preferably of
more than 1.5% at 30°C under a relative humidity of
10 40%.

15 6. Cosmetic process according to any one of
Claims 1 to 5, in which the tensioning agent is chosen
from synthetic polymers, polymers of natural origin,
mixed silicates, wax microparticles, colloidal
particles of inorganic fillers and the mixtures of
these.

20 7. Cosmetic process according to Claim 6,
in which the synthetic polymers are chosen from:
- polyurethane polymers and copolymers;
- acrylic polymers and copolymers;
- polymers of sulphoisophthalic acid;
- grafted silicone polymers;
25 - water-soluble or water-dispersible
polymers comprising water-soluble or water-dispersible
units and LCST units;
- non-elastomeric and water-insoluble film-
forming linear ethylenic block polymers exhibiting a
30 dynamic storage modulus E' at 1 Hz and at 22°C of
greater than 200 MPa;

- grafted ethylenic polymers as a dispersion of solid particles in a liquid fatty phase exhibiting a glass transition temperature of greater than 40°C;

5 - and mixtures of these.

8. Cosmetic process according to Claim 6, in which the polymers of natural origin are chosen from plant proteins and plant protein hydrolysates, 10 polysaccharides of plant origin in the form of microgels, latexes of plant origin and mixtures of these.

9. Cosmetic process according to any one of 15 Claims 1 to 8, in which the said grafted ethylenic polymer comprises a backbone which is insoluble in the said liquid fatty phase and a part which is soluble in the said liquid fatty phase composed of side chains covalently bonded to the said backbone.

20 10. Cosmetic process according to any one of Claims 1 to 9, in which the grafted ethylenic polymer is a grafted acrylic polymer.

25 11. Cosmetic process according to Claim 10, in which the grafted acrylic polymer is capable of being obtained by radical polymerization in the said liquid fatty phase:

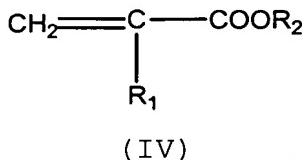
- of at least one acrylic monomer and optionally of at 30 least one additional non-acrylic vinyl monomer, in order to form the said insoluble backbone; and

- of at least one macromonomer comprising a polymerizable end group, in order to form the side chains, the said macromonomer having a weight-average molecular weight of greater than or equal to 200 and
5 the content of polymerized macromonomer representing from 0.05 to 20% by weight of the polymer.

12. Cosmetic process according to Claim 11,
in which the acrylic monomer or monomers are chosen
10 from monomers, the homopolymer of which is insoluble in
the liquid fatty phase under consideration, that is to
say that the homopolymer is in the solid form at a
concentration of greater than or equal to 5% by weight
at ambient temperature (20°C) in the said liquid fatty
15 phase.

13. Cosmetic process according to Claim 11
or 12, in which the acrylic monomer or monomers are
chosen from the following monomers:
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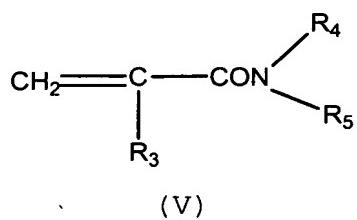
- (meth)acrylates of following formula (IV):



in which:

- 25 - R₁ denotes a hydrogen atom or a methyl group;
- R₂ represents a group chosen from:
- a linear or branched alkyl group comprising from 1 to
6 carbon atoms, it being possible for the said group to
comprise, in its chain, one or more heteroatoms chosen
30 from O, N and S; and/or it being possible for the said

- group to comprise one or more substituents chosen from -OH, halogen atoms (F, Cl, Br, I) and -NR'R" with R' and R", which are identical or different, being chosen from linear or branched alkyl groups comprising from 1 to 4 carbon atoms; and/or it being possible for the said group to be substituted by at least one polyoxyalkylene group, in particular one alkylene group comprising from 1 to 4 carbon atoms, especially one polyoxyethylene and/or polyoxypropylene group, the said polyoxyalkylene group being composed of the repetition of 5 to 30 oxyalkylene units;
- a cyclic alkyl group comprising from 3 to 6 carbon atoms, it being possible for the said group to comprise, in its chain, one or more heteroatoms chosen from O, N and S and it being possible for the said group to comprise one or more substituents chosen from the group consisting of OH and halogen atoms (F, Cl, Br, I);
- 20 - (meth)acrylamides of following formula (V):



- in which:
- R₃ denotes a hydrogen atom or a methyl group;
 - 25 - R₄ and R₅, which are identical or different, represent a hydrogen atom or a linear or branched alkyl group comprising from 1 to 6 carbon atoms which can comprise one or more substituents chosen from -OH, halogen atoms (F, Cl, Br, I) and -NR'R" with R' and R", which are

identical or different, being chosen from linear or branched alkyl groups comprising from 1 to 4 carbon atoms; or

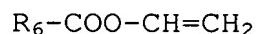
5 - R₄ represents a hydrogen atom and R₅ represents a 1,1-dimethyl-3-oxobutyl group;

- (meth)acrylic monomers comprising at least one carboxylic, phosphoric or sulphonic acid functional group;

10 it being possible for the said monomers to be in the form of salts.

14. Cosmetic process according to any one of Claims 11 to 13, in which the additional non-acrylic 15 vinyl monomer or monomers are chosen from the group consisting of:

- vinyl esters of following formula (VI):



20 (VI)

in which:

25 - R₆ represents a linear or branched alkyl group comprising from 1 to 6 carbon atoms or a cyclic alkyl group comprising from 3 to 6 carbon atoms and/or an aromatic group, for example of benzene, anthracene and naphthalene type;

30 - non-acrylic vinyl monomers comprising at least one carboxylic or sulphonic acid functional group, such as crotonic acid, maleic anhydride, itaconic acid, fumaric

acid, maleic acid, styrenesulphonic acid, vinylbenzoic acid, vinylphosphoric acid and the salts of these;

- 5 - non-acrylic vinyl monomers comprising at least one tertiary amine functional group, such as 2-vinyl-pyridine or 4-vinylpyridine;
- and mixtures of these.

10 15. Cosmetic process according to any one of Claims 11 to 14, in which the acrylic monomer or monomers represent from 50 to 100% by weight, preferably from 55 to 100% by weight, preferentially from 60 to 100% by weight, of the mixture composed of the acrylic monomer or monomers and of the optional 15 non-acrylic vinyl monomer or monomers.

16. Cosmetic process according to any one of Claims 11 to 13, in which the grafted acrylic polymer does not comprise additional non-acrylic vinyl 20 monomers.

17. Cosmetic process according to any one of Claims 11 to 16, in which the macromonomer comprises, at one of its ends, a polymerizable end 25 group chosen from a vinyl group or a (meth)acrylate group.

18. Cosmetic process according to any one of Claims 11 to 17, in which the macromonomer exhibits 30 a weight-average molecular weight (Mw) ranging from 200 to 100 000, preferably ranging from 500 to 50 000,

preferentially ranging from 800 to 20 000, more preferentially ranging from 800 to 10 000 and more preferentially still ranging from 800 to 6000.

5 19. Cosmetic process according to any one
of Claims 11 to 18, in which the polymerized
macromonomer represents from 0.1 to 15% by weight of
the total weight of the polymer, preferably from 0.2 to
10% by weight and more preferably from 0.3 to 8% by
10 weight.

15 20. Cosmetic process according to any one
of Claims 11 to 19, in which the macromonomer is chosen
from macromonomers, the homopolymer of which is soluble
in the liquid fatty phase under consideration, that is
to say completely dissolved at a concentration of
greater than or equal to 5% by weight and at ambient
temperature (20°C) in the said liquid fatty phase.

20 21. Cosmetic process according to any one
of Claims 1 to 20, in which the said liquid fatty phase
comprises at least one non-aqueous liquid compound
chosen from the group consisting of:

25 - liquid organic compounds having an
overall solubility parameter according to the Hansen
solubility space of less than or equal to 18 (MPa)^{1/2},
preferably of less than or equal to 17 (MPa)^{1/2};

30 - monoalcohols having an overall solubility
parameter according to the Hansen solubility space of
less than or equal to 20 (MPa)^{1/2}; and

 - mixtures of these.

22. Cosmetic process according to Claim 21,
in which the liquid fatty phase is a non-silicone fatty
phase.

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23. Cosmetic process according to Claim 22,
in which the non-silicone fatty phase comprises at
least 50% by weight of at least one non-silicone liquid
organic compound chosen from:

10 - non-silicone liquid organic compounds
having an overall solubility parameter according to the
Hansen solubility space of less than or equal to
18 (MPa)^{1/2}, preferably of less than or equal to
17 (MPa)^{1/2};

15 - liquid monoalcohols having an overall
solubility parameter according to the Hansen solubility
space of less than or equal to 20 (MPa)^{1/2}; and
- their mixtures.

20 24. Cosmetic process according to Claim 23,
in which the non-silicone liquid compound having an
overall solubility parameter according to the Hansen
solubility space of less than or equal to 18 (MPa)^{1/2},
preferably of less than or equal to 17 (MPa)^{1/2}, is
25 chosen from:

- optionally branched, carbon, hydrocarbon or
fluorinated, natural or synthetic oils, alone or as a
mixture;
- optionally volatile, linear, branched and/or cyclic
30 alkanes;

- esters and in particular linear, branched or cyclic esters having at least 6 carbon atoms, in particular having from 6 to 30 carbon atoms;
- 5 - ethers and in particular ethers having at least 6 carbon atoms, in particular having from 6 to 30 carbon atoms;
- ketones and in particular ketones having at least 6 carbon atoms, in particular having from 6 to 30 carbon atoms.

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25. Cosmetic process according to Claim 23, in which the monoalcohols having an overall solubility parameter according to the Hansen solubility space of less than or equal to 20 (MPa)^{1/2} are chosen from the 15 group formed by saturated or unsaturated liquid aliphatic fatty monoalcohols having at least 6 carbon atoms.

20 26. Cosmetic process according to any one of Claims 23 to 25, in which the non-silicone liquid fatty phase comprises less than 50% by weight of silicone liquid organic compounds.

25 27. Cosmetic process according to any one of Claims 23 to 25, in which the non-silicone liquid fatty phase does not comprise silicone liquid organic compounds.

30 28. Cosmetic process according to any one of Claims 23 to 27, in which the macromonomer or macromonomers are carbon macromonomers.

29. Cosmetic process according to Claim 28,
in which the carbon macromonomer is chosen from:

- (i) linear or branched C₈-C₂₂ alkyl
5 (meth)acrylate homopolymers and copolymers exhibiting a polymerizable end group chosen from vinyl or (meth)acrylate groups;
- (ii) polyolefins having an end group comprising ethylenic unsaturation, in particular having
10 a (meth)acrylate end group.

30. Cosmetic process according to Claim 28,
in which the carbon macromonomer is chosen from:

- (i) poly(2-ethylhexyl acrylate) macromonomers comprising a mono(meth)acrylate end; poly(dodecyl acrylate) macromonomers comprising a mono(meth)acrylate end; poly(dodecyl methacrylate) macromonomers comprising a mono(meth)acrylate end; poly(stearyl acrylate) macromonomers comprising a mono(meth)acrylate end; poly(stearyl methacrylate) macromonomers comprising a mono(meth)acrylate end;
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- (ii) polyethylene macromonomers, polypropylene macromonomers, polyethylene/polypropylene copolymer macromonomers, polyethylene/polybutylene copolymer macromonomers, polyisobutylene macromonomers, polybutadiene macromonomers, polyisoprene macromonomers, polybutadiene macromonomers, poly(ethylene/butylene)-polyisoprene macromonomers,
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- 30 these macromonomers having a (meth)acrylate end group.

31. Cosmetic process according to Claim 29 or 30, in which the carbon macromonomer is chosen from:

- (i) poly(2-ethylhexyl acrylate) macro-
monomers comprising a mono(meth)acrylate end, poly-
5 (dodecyl acrylate) macromonomers comprising a
mono(meth)acrylate end;

- (ii) poly(ethylene/butylene) methacrylate.

32. Cosmetic process according to any one
10 of Claims 1 to 31, in which the dispersion is a
dispersion obtained by polymerization of methyl
acrylate and of the macromonomer polyethylene/
polybutylene methacrylate in isododecane and the
tensioning agent is a colloidal silica dispersion.

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33. Cosmetic process according to any one
of Claims 1 to 31, in which the dispersion is a
dispersion obtained by polymerization of methyl
acrylate and of the macromonomer polyethylene/
20 polybutylene methacrylate in isododecane and the
tensioning agent is a dispersion obtained by
polymerization in isododecane of methyl acrylate, of
acrylic acid and of the macromonomer
polyethylene/polybutylene methacrylate.

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34. Cosmetic process according to Claim 21,
in which the liquid fatty phase is a silicone liquid
fatty phase.

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35. Cosmetic process according to Claim 34,
in which the silicone liquid fatty phase comprises at

least 50% by weight of at least one silicone liquid organic compound chosen from silicone liquid organic compounds having an overall solubility parameter according to the Hansen solubility space of less than 5 or equal to 17 (MPa)^{1/2}.

36. Cosmetic process according to Claim 34 or 35, in which the liquid fatty phase comprises a volatile silicone oil.

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37. Cosmetic process according to Claim 36, in which the volatile silicone oil is chosen from octamethylcyclotetrasiloxane, decamethylcyclopentasiloxane, dodecamethylcyclohexasiloxane, heptamethylhexyltrisiloxane, heptamethyloctyltrisiloxane, octamethyltrisiloxane, decamethyltetrasiloxane, and their mixtures.

38. Cosmetic process according to Claim 34 or 35, in which the liquid fatty phase comprises a non-volatile silicone oil.

39. Cosmetic process according to Claim 38, in which the non-volatile silicone oil is chosen from 25 non-volatile polydialkylsiloxanes; polydimethylsiloxanes comprising pending alkyl, alkoxy or phenyl groups or alkyl, alkoxy or phenyl groups at the end of the silicone chain, which groups have from 2 to 24 carbon atoms; phenylated silicones; polysiloxanes 30 modified with fatty acids (in particular C₈-C₂₀ fatty acids), fatty alcohols (in particular C₈-C₂₀ fatty

alcohols) or polyoxyalkylenes (in particular polyoxyethylene and/or polyoxypropylene); aminated polysiloxanes; polysiloxanes comprising hydroxyl groups; fluorinated polysiloxanes comprising a pending 5 fluorinated group or a fluorinated group at the end of the silicone chain having from 1 to 12 carbon atoms, all or part of the hydrogens of which are substituted by fluorine atoms; and their mixtures.

10 40. Cosmetic process according to any one of Claims 34 to 39, in which the liquid fatty phase comprises less than 50% by weight of non-silicone liquid organic compounds.

15 41. Cosmetic process according to any one of Claims 34 to 39, in which the liquid fatty phase does not comprise non-silicone liquid organic compounds.

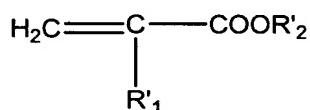
20 42. Cosmetic process according to any one of Claims 34 to 41, in which the macromonomer is a silicone macromonomer.

25 43. Cosmetic process according to Claim 42, in which the silicone macromonomer is an organopolysiloxane macromonomer and preferably a polydimethylsiloxane macromonomer.

30 44. Cosmetic process according to any one of Claims 34 to 43, in which the grafted acrylic

polymer is capable of being obtained by radical polymerization in the said liquid fatty phase:

- of a main acrylic monomer chosen from C₁-C₃ alkyl (meth)acrylates, alone or as a mixture, and optionally
- 5 of one or more additional acrylic monomers chosen from acrylic acid, methacrylic acid and alkyl (meth)acrylates of formula (VII):



(VII)

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in which:

- R'₁ denotes a hydrogen atom or a methyl group;
- R'₂ represents:

15 - a linear or branched alkyl group comprising from 1 to 6 carbon atoms, the said group comprising, in its chain, one or more oxygen atoms and/or comprising one or more substituents chosen from -OH, halogen atoms (F, Cl, Br, I) and -NR'R" with R' and R", which are identical or different, chosen from

20 linear or branched C₁-C₃ alkyls;

25 - a cyclic alkyl group comprising from 3 to 6 carbon atoms, it being possible for the said group to comprise, in its chain, one or more oxygen atoms and/or it being possible for the said group to comprise one or more substituents chosen from OH and halogen atoms (F, Cl, Br, I);

and their salts, in order to form the said insoluble backbone;

- and of a silicone macromonomer.

45. Cosmetic process according to Claim 44,
in which R'₂ denotes a group chosen from the
methoxyethyl, ethoxyethyl, trifluoroethyl, 2-hydroxy-
ethyl, 2-hydroxypropyl, dimethylaminoethyl, diethyl-
aminoethyl and dimethylaminopropyl groups.
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46. Cosmetic process according to Claim 44,
in which the main acrylic monomer is chosen from methyl
10 (meth)acrylate, ethyl (meth)acrylate, n-propyl
meth(acrylate), isopropyl (meth)acrylate, and their
mixtures.

47. Cosmetic process according to Claim 46,
15 in which the main acrylic monomer is chosen from methyl
acrylate, methyl methacrylate or ethyl methacrylate.

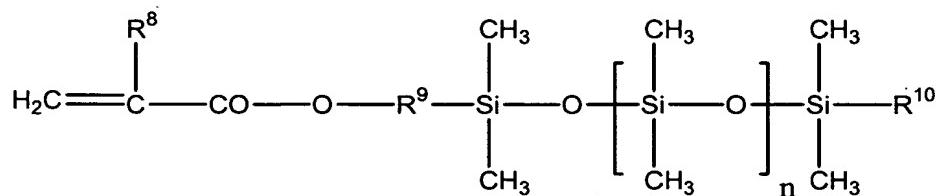
48. Cosmetic process according to Claim 44,
in which the additional acrylic monomer is chosen from
20 (meth)acrylic acid, methoxyethyl (meth)acrylate,
ethoxyethyl (meth)acrylate, trifluoroethyl meth-
acrylate, dimethylaminoethyl methacrylate, diethyl-
aminoethyl methacrylate, 2-hydroxypropyl
(meth)acrylate, 2-hydroxyethyl (meth)acrylate, their
25 salts and their mixtures.

49. Cosmetic process according to Claim 48,
in which the additional acrylic monomer is chosen from
acrylic acid or methacrylic acid.

50. Cosmetic process according to any one of Claims 44 to 49, in which the silicone macromonomer is chosen from polydimethylsiloxanes comprising a mono(meth)acrylate end group.

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51. Cosmetic process according to Claim 50, in which the silicone macromonomer corresponds to the following formula (VIII):



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(VIII)

in which:

- R^8 represents a hydrogen atom or a methyl group;
- R^9 represents a divalent hydrocarbon group having from 1 to 10 carbon atoms and optionally comprising one or two ether -O- bonds;
- R^{10} represents an alkyl group having from 1 to 10 carbon atoms, in particular from 2 to 8 carbon atoms;
- n represents an integer ranging from 1 to 300, preferably ranging from 3 to 200 and preferentially ranging from 5 to 100.

25 52. Cosmetic process according to any one of Claims 35 to 51, in which the dispersion is obtained by polymerization of methyl acrylate and of the macromonomer monomethacryloyloxypropylpolydimethyl-

siloxane in cyclopentadimethylsiloxane and the tensioning agent is a colloidal silica dispersion.

5 53. Cosmetic process according to any one of Claims 1 to 52, in which the grafted polymer has a weight-average molecular weight (M_w) of between 10 000 and 300 000, in particular between 20 000 and 200 000, better still between 25 000 and 150 000.

10 54. Cosmetic process according to any one of Claims 1 to 53, in which the grafted polymer particles have a mean size ranging from 10 to 400 nm, preferably ranging from 20 to 200 nm.

15 55. Cosmetic process according to any one one of Claims 1 to 54, in which the composition is applied to the outline of the eye.

20 56. Cosmetic process according to any one of Claims 1 to 55, in which the composition is a care composition or a make-up composition.

25 57. Cosmetic composition comprising, in a physiologically acceptable medium suitable for topical application to the skin of the face:

 - from 0.1 to 20% by weight of at least one tensioning agent, with respect to the total weight of the composition, the said tensioning agent being in the form of colloidal particles of inorganic fillers; and

- at least one dispersion in a liquid fatty phase of solid particles of a grafted ethylenic polymer.

5 58. Use of a dispersion of solid particles of a grafted ethylenic polymer as defined according to any one of Claims 1 to 54 for improving the persistence of the tensioning effect provided by a tensioning agent as defined according to any one of Claims 1 to 7.

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15 59. Use of a dispersion of solid particles of a grafted ethylenic polymer as defined according to any one of Claims 1 to 54 in a cosmetic composition comprising, as tensioning agent, an aqueous dispersion of colloidal inorganic particles, in particular of silica, for preventing whitening of the skin.